

WE CLAIM:

1. A seatbelt retractor comprising:
a reel for winding a seatbelt webbing;
a locking mechanism having a locking member that is prevented from rotating in the webbing unwinding direction in case of emergency;
a torsion bar provided concentrically with said reel and rotatably connected between said reel and said locking member for restraining a load applied to said webbing when rotation of said locking member in the webbing unwinding direction is prevented to allow said reel to rotate in the webbing unwinding direction with respect to said locking member by a prescribed amount; and
wherein the torsion bar includes a first torque transmitting shaft press-fitted into an axial hole on the reel and a second torque transmitting shaft press-fitted into an axial hole on said locking member;
wherein at least one of the first and second torque transmitting shafts includes a backlash preventing portion for preventing backlash when the at least one of said first torque transmitting shaft and said second torque transmitting shaft is press fitted;
wherein the backlash preventing portion is provided on at least one of said first torque transmitting shaft and said second torque transmitting shaft or at least one of the inner peripheral surfaces of the respective axial holes on said reel and the same on said locking member at the position where the majority of the force generated when rotation of said locking member in the webbing unwinding direction is locked is not applied.
2. The seatbelt retractor of Claim 1, wherein the backlash preventing portion is a backlash preventing rib provided on at least one of the first torque transmitting shaft and the second torque transmitting shaft and extending in the axial direction.
3. The seat belt retractor of Claim 1, wherein the backlash preventing portion is a backlash preventing rib provided on at least one of the inner peripheral surfaces of the respective axial holes on said reel and the locking member and extending in the axial direction of the torsion bar.

4. A seat belt retractor comprising:
a reel for winding the webbing;
a locking mechanism connected to the reel by a torsion bar;
wherein the locking member is configured to be prevented from rotating in order to prevent the webbing from withdrawing from the reel;
wherein one end of the torsion bar includes a rib positioned to prevent backlash;
wherein the rib is positioned on a portion of the torsion bar not subjected to the majority of the force applied between the reel and the torsion bar when rotation of the locking member is prevented.
5. The retractor of claim 4, wherein the rib is positioned on the end of the torsion bar connected to the reel.
6. The retractor of claim 4, wherein the rib is positioned on the end of the torsion bar connected to the locking mechanism.
7. A seat belt retractor comprising:
a reel for winding the webbing;
a locking mechanism connected to the reel by a torsion bar;
wherein the locking mechanism is configured to be prevented from rotating in order to prevent the webbing from withdrawing from the reel;
wherein one end of the torsion bar is press fitted into a hole in the reel and the other end of the torsion bar is press fitted into a hole in the locking mechanism;
wherein a rib to prevent backlash is positioned in the hole in at least one of the reel and the locking mechanism at a location not subjected to the majority of the force applied between the at least one of the reel and the locking mechanism and the torsion bar when rotation of the locking mechanism is prevented.
8. The retractor of claim 7, wherein the rib is located on the locking mechanism.

9. The retractor of claim 7, wherein the rib is located on the reel.
10. The retractor of claim 9, wherein the rib is formed by a punch contacting the reel.
11. The retractor of claim 8, wherein the rib is formed by a punch contacting the locking mechanism.
12. The retractor of claim 7, wherein the rib includes an arc-shaped cross section.
13. The retractor of claim 7, wherein the rib includes a triangular cross section.
14. The retractor of claim 7, wherein the cross-section of the rib varies in width in the axial direction.
15. A seat belt retractor comprising:
a reel for winding the webbing;
a locking mechanism connected to the reel by a torsion bar;
wherein the locking mechanism is configured to be prevented from rotating in order to prevent the webbing from withdrawing from the reel;
wherein one end of the torsion bar is press fitted into a hole in the reel and the other end of the torsion bar is press fitted into a hole in the locking mechanism;
wherein a backlash preventing structure is positioned in the hole in at least one of the reel and the locking mechanism at a location not subjected to the majority of the force applied between the at least one of the reel and the locking mechanism and the torsion bar when rotation of the locking mechanism is prevented.
16. The retractor of claim 15, wherein the backlash preventing structure includes a tapered portion located in the locking mechanism and projecting toward the end of the torsion bar located in the hole.



17. The retractor of claim 15, wherein the backlash preventing structure includes a tapered portion located in the reel and projecting toward the end of the torsion bar located in the hole.

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